Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

NATIONAL GUIDELINE CLEARINGHOUSE

General

Guideline Title

Best evidence statement (BESt). School-aged and adolescent bone marrow transplant (BMT) recipients: quality of life interventions.

Bibliographic Source(s)

Cincinnati Children's Hospital Medical Center. Best evidence statement (BESt). School-aged and adolescent bone marrow transplant (BMT) recipients: quality of life interventions. Cincinnati (OH): Cincinnati Children's Hospital Medical Center; 2012 May 30. 7 p. [12 references]

Guideline Status

This is the current release of the guideline.

Recommendations

Major Recommendations

The strength of the recommendation (strongly recommended, recommended, or no recommendation) and the quality of the evidence (1aâ€'5b) are defined at the end of the "Major Recommendations" field.

It is recommended that music therapy, exercise therapy, art therapy and telecommunication be provided to all school-aged and adolescent bone marrow transplant recipients during the first year following transplant to improve quality of life (Burns, Robb, & Haase, 2009 [2b]; Rosenhagen et al., 2011 [2b]; Robb et al., 2008 [2b]; San Juan et al., 2008 [3b]; Robb & Ebberts, "Songwriting and digital video production, part I," 2003 [3b]; Robb & Ebberts, "Songwriting and digital video production, part II," 2003 [3b]; Forinder & Posse, 2008 [4a]; Higuchi et al., 2011 [4b]; Guenter, 2000 [5a]).

> Note: A single study of massage therapy and humor did not demonstrate improved quality of life for children and teens following bone marrow transplant (Phipps et al., 2010 [2b]).

Definitions:

Table of Evidence Levels

Quality Level	Definition
1a† or 1b†	Systematic review, meta-analysis, or meta-synthesis of multiple studies
2a or 2b	Best study design for domain
3a or 3b	Fair study design for domain
4a or 4b	Weak study design for domain

Quality Level	Definition
5a or 5b	General review, expert opinion, case report, consensus report, or guideline
5	Local consensus

†a = good quality study; b = lesser quality study

Table of Recommendation Strength

Strength	Definition
It is strongly recommended that… It is strongly recommended that…not…	There is high support that benefits clearly outweigh risks and burdens *(or vice versa for negative recommendations).*
It is recommended that… It is recommended that…not…	There is moderate support that benefits are closely balanced with risks and burdens.
There is insufficient evidence and a lack of consensus to make a recommendation…	

See the original guideline document for the dimensions used for judging the strength of the recommendation.

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Malignancy, immune deficiency, bone marrow failure or other congenital disorders requiring bone marrow transplantation

Guideline Category

Rehabilitation

Treatment

Clinical Specialty

Family Practice

Internal Medicine

Oncology

Pediatrics

Intended Users

Advanced Practice Nurses

Nurses

Occupational Therapists

Physical Therapists

Physician Assistants

Physicians

Guideline Objective(s)

To evaluate, among school-aged children and adolescents undergoing bone marrow transplant, if providing psychosocial interventions compared to current care practices improves quality of life during the first year post transplant

Target Population

Children and adolescents (6-18 years old) undergoing bone marrow transplantation, including autologous, and allogeneic, marrow, peripheral blood, and cord blood, as treatment for their underlying malignancy, immune deficiency, bone marrow failure or other congenital disorder

Note: Children younger than age 6 years at time of admission for the bone marrow transplant or older than age 18 years at the time of admission for the bone marrow transplant are excluded.

Interventions and Practices Considered

Music therapy, exercise therapy, art therapy and telecommunication during the first year following transplant

Major Outcomes Considered

Quality of life

Methodology

Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

Search Strategy

Databases: Medline, PubMed, CINAHL, SCOPUS, PsycINFO, Cochrane Library, National Association of Children's Hospitals and Related Institutions (NACHRI)

Search terms included: bone marrow transplant, stem cell transplant, hematopoietic stem cell transplant, child, children, pediatric, adolescent, quality of life, health-related quality of life, coping, interventions, art therapy, music therapy, journaling, exercise, social support, post-traumatic stress disorder, hope, reintegration, depression, anxiety, and cognitive behavior therapy.

Limits included: English language, human, all children, dates between 2000 and 2011.

Literature search was last completed: February 2012.

Number of Source Documents

Not stated

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Table of Evidence Levels

Quality Level	Definition
1a† or 1b†	Systematic review, meta-analysis, or meta-synthesis of multiple studies
2a or 2b	Best study design for domain
3a or 3b	Fair study design for domain
4a or 4b	Weak study design for domain
5a or 5b	General review, expert opinion, case report, consensus report, or guideline
5	Local consensus

†a = good quality study; b = lesser quality study

Methods Used to Analyze the Evidence

Systematic Review

Description of the Methods Used to Analyze the Evidence

Not stated

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

Not stated

Rating Scheme for the Strength of the Recommendations

Table of Recommendation Strength

Strength	Definition
It is strongly recommended that… It is strongly recommended that…not…	There is high support that benefits clearly outweigh risks and burdens *(or vice versa for negative recommendations).*
It is recommended that… It is recommended that…not…	There is moderate support that benefits are closely balanced with risks and burdens.
There is insufficient evidence and a lack of consensus to make a recommendation…	

See the original guideline document for the dimensions used for judging the strength of the recommendation.

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

Peer Review

Description of Method of Guideline Validation

This Best Evidence Statement has been reviewed against quality criteria by 2 independent reviewers from the Cincinnati Children's Hospital Medical Center (CCHMC) Evidence Collaboration.

Evidence Supporting the Recommendations

References Supporting the Recommendations

Burns DS, Robb SL, Haase JE. Exploring the feasibility of a therapeutic music video intervention in adolescents and young adults during stem-cell transplantation. Cancer Nurs. 2009 Sep-Oct;32(5):E8-E16. PubMed

Forinder U, Posse E. 'A life on hold': adolescents' experiences of stem cell transplantation in a long-term perspective. J Child Health Care. 2008 Dec;12(4):301-13. PubMed

Guenter M. Art therapy as an intervention to stabilize the defenses of children undergoing bone marrow transplantation. Arts Psychother. 2000;27(1):3-14.

Higuchi K, Nakazawa Y, Sakata N, Takizawa M, Ohso K, Tanaka M, Yanagisawa R, Koike K. Telecommunication system for children undergoing stem cell transplantation. Pediatr Int. 2011 Dec;53(6):1002-9. PubMed

Phipps S, Barrera M, Vannatta K, Xiong X, Doyle JJ, Alderfer MA. Complementary therapies for children undergoing stem cell transplantation: report of a multisite trial. Cancer. 2010 Aug 15;116(16):3924-33. PubMed

Robb SL, Clair AA, Watanabe M, Monahan PO, Azzouz F, Stouffer JW, Ebberts A, Darsie E, Whitmer C, Walker J, Nelson K, Hanson-Abromeit D, Lane D, Hannan A. A non-randomized [corrected] controlled trial of the active music engagement (AME) intervention on children with cancer. Psychooncology. 2008 Jul;17(7):699-708. PubMed

Robb SL, Ebberts AG. Songwriting and digital video production interventions for pediatric patients undergoing bone marrow transplantation, part I: an analysis of depression and anxiety levels according to phase of treatment. J Pediatr Oncol Nurs. 2003 Jan-Feb;20(1):2-15. PubMed

Robb SL, Ebberts AG. Songwriting and digital video production interventions for pediatric patients undergoing bone marrow transplantation, part II: an analysis of patient-generated songs and patient perceptions regarding intervention efficacy. J Pediatr Oncol Nurs. 2003 Jan-Feb;20(1):16-25. PubMed

Rosenhagen A, Bernhoerster M, Vogt L, Weiss B, Senn A, Arndt A, Siegler K, Jung M, Bader P, Banzer W. Implementation of structured physical activity in the pediatric stem cell transplantation. Klinical Padeiatrics. 2011;233:147-51.

San Juan AF, Chamorro-Vina C, Moral S, Fernandez del Valle M, Madero L, Ramirez M, Perez M, Lucia A. Benefits of intrahospital

exercise training after pediatric bone marrow transplantation. Int J Sports Med. 2008 May;29(5):439-46. PubMed

Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for each recommendation (see the "Major Recommendations" field).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Music therapy, exercise therapy, art therapy, and telecommunication were shown to have a positive effect on quality of life for children and adolescents following bone marrow transplant.

Potential Harms

Not stated

Qualifying Statements

Qualifying Statements

This Best Evidence Statement addresses only key points of care for the target population; it is not intended to be a comprehensive practice guideline. These recommendations result from review of literature and practices current at the time of their formulation. This Best Evidence Statement does not preclude using care modalities proven efficacious in studies published subsequent to the current revision of this document. This document is not intended to impose standards of care preventing selective variances from the recommendations to meet the specific and unique requirements of individual patients. Adherence to this Statement is voluntary. The clinician in light of the individual circumstances presented by the patient must make the ultimate judgment regarding the priority of any specific procedure.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Implementation Tools

Audit Criteria/Indicators

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Getting Better

Living with Illness

IOM Domain

Effectiveness

Identifying Information and Availability

Bibliographic Source(s)

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Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2012 May 30

Guideline Developer(s)

Cincinnati Children's Hospital Medical Center - Hospital/Medical Center

Source(s) of Funding

Cincinnati Children's Hospital Medical Center

Guideline Committee

Not stated

Composition of Group That Authored the Guideline

Team Leader/Author: Gretchen Vaughn, RN, MSN, CNP, Bone Marrow Transplant/Immunology

Support/Consultant: Mary Ellen Meier, RN, MSN, CPN, EBP Mentor

Financial Disclosures/Conflicts of Interest

No financial conflicts of interest were found.

Guideline Status

This is the current release of the guideline.

Guideline Availability

Electronic copies: Available from the Cincinnati Children's Hospital Medical Center Web site.

Print copies: For information regarding the full-text guideline, print copies, or evidence-based practice support services contact the Cincinnati Children's Hospital Medical Center Health James M. Anderson Center for Health Systems Excellence at EBDMInfo@cchmc.org.

Availability of Companion Documents

The following are available:

- Judging the strength of a recommendation. Cincinnati (OH): Cincinnati Children's Hospital Medical Center; 2008 Jan. 1 p. Available from the Cincinnati Children's Hospital Medical Center Web site.
- Grading a body of evidence to answer a clinical question. Cincinnati (OH): Cincinnati Children's Hospital Medical Center; 1 p. Available from the Cincinnati Children's Hospital Medical Center Web site.
- Table of evidence levels. Cincinnati (OH): Cincinnati Children's Hospital Medical Center; 2008 Feb 29. 1 p. Available from the Cincinnati Children's Hospital Medical Center Web site.

Print copies: For information regarding the full-text guideline, print copies, or evidence-based practice support services contact the Cincinnati Children's Hospital Medical Center Health James M. Anderson Center for Health Systems Excellence at EBDMInfo@cchmc.org.

In addition, suggested process or outcome measures are available in the original guideline document.

Patient Resources

None available

NGC Status

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